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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Automatic Roulette Wheel

We, BRECKNELL, DOLMAN & ROGERS LIMITED, a British Company, of Pennywell Road, Bristol 5, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an installation for playing the game of Roulette. The object of this invention is to provide an improved installation comprising a manually settable control mechanism for a Roulette wheel by means of which various combinations can be 'backed' and bets placed in the form of coins or counters which effect release of said control mechanism, said wheel being then started up and stopped automatically, whereupon the control mechanism automatically pays out prearranged prize money to a player who has backed the winning combination.

Accordingly the invention provides an installation for playing the game of Roulette, comprising a Roulette wheel or turntable automatically and intermittently rotatable and a Roulette wheel control mechanism including means whereby betting combinations can be chosen and entered for play upon insertion of one or more coins or counters into a release device forming part of the control mechanism, and during a dwell period of turntable rotation or until a prearranged time before rotation of the turntable is arrested and a ball rolls off said turntable, the arrangement being such that said chosen betting combination is automatically entered into conditionable means and thereby conditions subsequent operation of the conditionable means in the event of said ball arriving at said conditionable means.

The layout of the wheel, that is "odds" for each combination backed, is somewhat similar to the conventional Roulette Wheel, and conditions of play can be similar except that having manually set suitable selector units

the following actions are entirely automatic. If so desired the various odds and combinations could be varied.

More particularly the invention provides an installation for playing the game of Roulette, comprising a turntable with drive mechanism for starting and stopping the rotation of the turntable during a period of an operating cycle, and control mechanism adapted for circulating a ball at random through conditionable means associated with said turntable, and a plurality of coin or counter operable backing units, which are severally settable by a player during a dwell period of said turntable, or before rotation of said turntable is arrested and according to one of a series of pre-arranged numerical or numerical and colour combinations, said control mechanism including means interconnecting said plurality of backing units with said conditionable means, whereby coincidence of one of said setting unit combinations with those conditionable means actuated by the random-circulated ball initiates payout of prize money to the player who has chosen that particular combination.

A Roulette installation according to this invention thus includes an automatic Roulette wheel over which players have no control, and a series of Backing Units each comprising manually-settable selector means and manually-settable pay-out means, which latter is prepared for operation by insertion of at least one suitable coin (or counter), each Backing Unit, comprising such selector and pay-out means, being under the control of one player and all players having to place bets by setting the respective units within a limited interval of time. The player-settable selector and pay-out Backing Units are preferably grouped around the Roulette Wheel and all supported on a common table; it will, however, be appreciated that the wheel and

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associated equipment may be remotely situated to said Backing Units and not supported on a common table.

5 Before describing the mechanism and electrical control circuitry employed the principles of play will be described.

The following description is based on the assumption that the installation comprises a Roulette Wheel with four Backing Units.

10 Each unit is set to pay out a fixed prize if the particular combination selected is a winning combination.

15 The Roulette Wheel proper, hereinafter referred to in the description as a turntable, provides 37 positions into any one of which the ball could roll, that is, positions numbered from 1 to 36 inclusive, and one ZERO position. The numbers are in red or black, and the sequence of number and colour is preferably the same as on a conventional roulette wheel.

20 In the machine to be described, four Backing Units are provided, each for operation by one player, and these units may be arranged, for example, for the following "odds":—

- (1) (a) Red
 - (b) Black
 - (c) Under 18
 - (d) Over 18
- 30 with a payout of two coins for win.
- (2) (a) 1 to 9
 - (b) 10 to 18
 - (c) 19 to 27
 - (d) 28 to 36
- 35 with a payout of four coins for win.
- (3) (a) 18, 29, 7, 28
 - (b) 16, 33, 1, 20
 - (c) 21, 2, 25, 17
 - (d) 36, 11, 30, 8
- 40 with a payout of nine coins for win.
- (4) (a) 23, 10, 5
 - (b) 34, 6, 27
 - (c) 13, 31, 9
 - (d) 32, 15, 19

45 with a payout of twelve coins for win. Preferably, as described later, the Backing Units are connected electrically with electrical switch units, forming part of the Roulette Wheel control mechanism, said switch units constituting the preferred form of the conditionable means herein referred to. The prize payout is automatically controlled by the switch units.

55 The Roulette installation is operated as follows: The motor that drives the Roulette turntable is switched on and runs continuously during the whole period of play. The time cycle of the turntable drive mechanism controls all operations in the correct sequence.

60 During the allowable time cycle, each of up

to four players inserts one or more coins into his Backing Unit and turns the operating knob to make that particular unit operative. A selector knob is provided on each Backing Unit to enable the player to select any one of four pre-arranged combinations, such as those listed previously. After a certain period of the turntable movement, and before the final position in which the ball on the turntable will come to rest may become apparent, any further turning of the selector knob will result in the Backing Unit becoming inoperative, thus preventing cheating.

65 When the turntable finally comes to rest the ball which has rolled off said turntable drops through one of a series of notches in the edge of the turntable, a notch for each of the 37 positions referred to and except when it drops into the zero position the dropping ball actuates appropriate switches which operate payout solenoids on the backing units if the winning number, colour or combination of numbers have been selected. After one complete cycle, the Backing Units are reset automatically, so that they are inoperative until a further coin has been inserted.

70 The component parts of an automatic Roulette Wheel installation according to the invention are illustrated, by way of example, in the drawings accompanying the Provisional Specification, wherein:

75 Fig. 1 is a vertical section through the Roulette Wheel mechanism;

Fig. 2 is a plan view on line II—II, Fig. 1;

Fig. 3 is an end view, looking in the direction of arrow III, Fig. 2;

Fig. 4 is a fragmentary sectional view on line IV—IV, Fig. 2;

Fig. 5 is a fragmentary plan view, looking in the direction of arrow V, Fig. 1;

Fig. 6 is a fragmentary sectional view on line VI, Fig. 2;

Fig. 7 is a fragmentary end view, looking in the direction of arrow VII, Fig. 2;

Fig. 8 is an elevation of one of the turntable control switches, with a cover plate removed, and looking in the direction of arrow VIII, Fig. 1;

Fig. 9 is a diagrammatic layout of the turntable control switches;

Fig. 10 is a part-sectional plan view of one of the Backing Units;

Fig. 11 is a longitudinal section taken mainly on line XI—XI, Fig. 10;

Fig. 12 is a view from beneath of the Backing Unit, that is, looking in the direction of arrow XII, Fig. 11;

Fig. 13 is a fragmentary part-sectional view, looking in the direction of arrow XIII, Fig. 12;

Fig. 14 is a view of the selector unit knob and cover plate, looking in the direction of arrow XIV, Fig. 11, and

Fig. 15 is a diagram showing electrical circuitry suitable for the installation forming the illustrated embodiment.

5 The above mentioned figures are supplemented by the drawings which accompanies this Complete Specification, namely, Figure 16, which is a diagrammatic plan view of an installation according to the invention.

10 The Roulette Wheel mechanism, illustrated in Figs. 1 to 9, comprises a motor-driven drive shaft 1, continuously rotated at such a speed that one revolution of the shaft corresponds to one complete operation cycle, which conveniently covers about 15 seconds. Two edge cams 2 and 3, fixed to shaft 1, operate switches 4 and 5 respectively which are in electrical control circuitry—hereinafter more particularly referred to—and also fixed to shaft 1 is a radial arm 6 carrying a pawl 7 pivotally mounted on pin 8.

15 The nose 7A of pawl 7 is adapted to engage slots 9A, 9B in a disc 9 secured to a gear wheel 10 which is freely mounted on shaft 1 and the tail 7B of pawl 7 is adapted to engage a fixed pin 11.

20 The gear wheel 10 is in mesh with a gear pinion 12 fixed to one end of a driven shaft 13 which is provided at its other end with a bevel gear wheel 14. Gear wheel 14 meshes with another bevel gear wheel 15 attached to a sleeve 16 rotatable about a vertical axis and surmounted by the turntable 17 (that is, the roulette wheel). The turntable 17 is mounted for rotation about a hollow dead spindle 18 by means of ball races 19, 20.

25 On the shaft 1 is also mounted a cam assembly comprising a face cam 21 and a box cam 22, integrally joined or secured for rotation together. The face cam 21, which has adjoining dwell portions 21A and 21B, is adapted to displace longitudinally a rod 23 through a roller 24 mounted in a clevis 25 on said rod, displacement of rod 23 serving to rock a lever 26 and with it a triangular plate 27 rigidly secured to lever 26 through a post 28, so that both the lever 26 and the plate 27 switch together about a dead spindle 29.

30 Freely pivoted on spindle 29 is a spring-loaded stop lever 30 adapted to co-act with a latch 31 pivoted on a pin 32 carried by a flange 16A of sleeve 16, said latch 31 being biased by a spring 33 toward a stop pin 34 also on flange 16A. The swing of latch 31 in the opposite direction is limited by an abutment 35 formed on flange 16A; normally, as shown in Fig. 2, there is a small clearance between latch 31 and abutment 35.

35 A pin 36 upstands from flange 16A of sleeve 16 for co-action with the toe 37A of a spring-loaded bell-crank lever 37 carried by a pin 38 fixed to plate 27, the lower end 38A of pin 38, projecting below plate 27 and moving in a curve slot 30A in stop lever 30, said slot having its centre of curvature at spindle 29.

40 The turntable 17 revolves above the floor of a shallow bowl 40, the peripheral margin

40A of said floor sloping down to a large central aperture 41. The rim of said turntable 17 extends radially beyond said aperture 41, but has a plurality of notches 17A into any one of which a ball (marked A in Fig. 5) may enter to drop down through aperture 41; the fingers between notches 17A and forming the turntable rim are pointed so that the ball cannot lodge against said rim.

45 In the embodiment illustrated it is to be supposed that the turntable 17 has thirty seven notches 17A through which according to one layout of the installation (see Fig. 9) a ball may be delivered to any one of nine pay-out control switch units or to a single "zero" pocket 200, the purpose of which is described later.

50 The ball which passes via one of the turntable notches 17A through one of the pay-out control switch units 61, hereinafter more particularly described (or much less frequently to the "zero" pocket 200) eventually arrives at a position where it (the ball marked B in Fig. 1) is resting against the side of a cup 42 which lies, with its rim abutting the underside of the hollow dead spindle 18, beneath a bridge 43 which is disposed a suitable distance above the dished top of the turntable base 44; the spindle 18 is secured to bridge 43 by a screw fastener 45.

55 The cup 42 is maintained normally in the position illustrated in Fig. 1 by a coil spring 46 encircling a vertical spindle 47 which passes up through hollow spindle 18 and is surrounded by a cap 48 secured by screw 49, the crown of said cap 48 being coned so that the ball (marked C in Fig. 1) when lifted from position B—as described later—cannot remain poised on said cap. The ball can roll off, equally well in all directions, onto the turntable 17, thence into bowl 40 and again through aperture 41 to repeat the circulatory movement of the ball; only two balls are in use and these are both in circulation and these two operative balls will be considered as those marked B and C in Fig. 1.

60 The lower end of spindle 47 is formed as a toothed rack 47A which meshes with a gear wheel 50 having attached thereto a pinion 51, the wheel 50 and pinion 51 running on a dead pin 52 carried by a bracket 53 attached to the turntable base 44. The pinion 51 meshes with a toothed sector 54 fixed to a spindle 55 which lies parallel to and below the level of the driven shaft 13 (Fig. 1), said spindle 55 being mounted for rotation in bearings, one of which (bearing 56) is situated adjacent the cam assembly 21—22. A lever 58 is secured to spindle 55 and carries a roller 59 on pin 60, said roller 59 engaging the box cam 22 to impart necessary timed movements to spindle 47.

65 Beneath the bowl 40, within the space above the top of base 44 encompassed by a housing 57 which supports said bowl, are nine

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5 payout control switch units 61 (see Fig. 9), only one of said units being shown in Fig. 1. Each switch unit 61 has four ball entrance chutes 62, 63, 64 and 65 (see Fig. 8) which align with notches 17A in the turntable 17 when the turntable is at rest. There are thus thirty six entrances in the nine switch units 61 into any one of which a ball may fall; no switch is provided for the "zero" pocket 200, 10 which aligns with the thirtyseventh turntable notch.

15 A switch 68 is provided for each of the four ball entrance chutes 62, 63, 64, 65 of each switch unit 61, the arms of such switches 68 projecting into the path of and being adapted for operation by a ball dropping through any of said chutes; each switch 68 is of 3-pole or 4-pole type as required by the operating combination of switches—as will be 20 evident from Fig. 15.

25 Chutes 62, 63, 64 and 65 all lead to a shelf 66 which directs the ball passing through to operate the arm of another switch 69 in the common collector chute 70 and after escaping through exit opening 67 in the detachable backplate 71 of switch unit 61 the ball operates the arm of switch 72 on eight units only; switches 69 and 72 are single pole switches.

30 The ball chute 65 of switch unit 61 normally provides a throughway for the ball which happens to drop thereinto, only the switch 68 in the upper part of chute 65 being operated. A bridge piece 73 is adapted to be secured when required in chute 61 by screw 35 74, level with shelf 66, so as to direct a ball from chute 65 into the common collector chute 70. It will be appreciated therefore that if a ball enters what may be called a four-group unit one of the switches 68 in chutes 62, 63, 40 64 and 65 will always be made, together with switches 69 and 72; in a three-group unit, that is, a unit in which bridge piece 73 is not blocking chute 65, a ball entering chute 65 makes one switch 68 only.

45 Each Backing Unit takes the form of a coin-controlled selector and pay-out unit, one form of which is illustrated in Figs. 10 to 14. The Backing Unit comprises a main base 80 on the flat top panel 80A of which are mounted a coin carrier device X and a selector switch Y having some of their associated equipment above the panel and the remainder below the panel; the coin carrier device X and the selector switch Y are interconnected mechanically and electrically as hereinafter more particularly described.

50 The coin carrier device X provides a series of coin pockets 81 in the form of U-shaped gaps or notches in the rim of a coin carrier disc 82 secured to a spindle 83 which is mounted for rotation on said base panel 80A, a handknob 84 being secured to coin carrier disc 82 to permit of manual setting by a player. The coin carrier disc 82 is encompassed by a flat ring 85, having a coin entrance

gap 85A. Within recesses in said ring 85 on opposite sides of said gap are a spring-loaded coin stop pawl 86 and a disc check pawl 87, having toe portions biased toward disc 82 and thus adapted for engagement with the pockets 81.

70 Within radial grooves or tunnels in the disc 82 are pushers 88 adapted for radial projection, as the disc 82 is turned, by engagement with a camming roll 89, for the purpose of pushing outwards a coin Z trapped in a pocket 81, so that the edge of the projecting coin in passing along recess 85B contacts with a roller 90 carried on a lever 91. If desired the mechanism may be adapted for operation by two or more coins placed one above the other in coin pocket 81. The lever 91 is pivotally mounted on the underside of the top panel 80A on a pivot pin 92 and has its outer end 91A moving in the path of a pawl 93 pivoted on pin 94. As the lever 91 rocks on pin 92 it operates a switch 95 thereby conditioning the electrical control circuitry for operation. On the pin 92 is also pivoted a locator lever 96 biased by a spring 97 into engagement with a recessed wheel 98 secured to spindle 83.

75 The wheel 98 has four equi-spaced recesses engageable with the head of lever 96 to provide a register to position the coin disc 82 in its rest position and also to prevent turning of knob 84 in the wrong direction at the start of its movement.

80 From the base panel 80A, in the path taken by a coin Z being carried round by disc 82, is suspended a coin hopper 99, having an overflow gap 100 through which coins may pass direct to a cash till (not shown) when the hopper is full; a projecting tab 101 in the mouth of the hopper facilitates the overflow of coins by tilting the top coin in the hopper.

85 Adjacent the floor of hopper 99 is an aperture 102 into which can sweep the toe 103 of lever 104 pivoted on a pin 105, the thickness of the lever toe and depth of the aperture 102 determining the number of pay-out coins (that is, whether two, three or four coins) swept out by lever 104. Another limb 106 of lever 104 is engageable with a recess in wheel 98 to ensure that lever 104 is operable only when the recessed wheel 98 is in its rest position.

90 The selector switch Y comprises a hand-knob 107 mounted for rotation on a dead spindle 108 fixed to the base panel 80A, a pointer 109 being carried by knob 107 to indicate which of the number groups has been selected by the operator; these number groups are marked on a cover plate 110. Beneath the cover plate 110, lying on the body top panel, is a disc 111 secured to knob 107 and having a chamfered projection 112 and three interference slots 113. Beneath the base panel 80A is a lever 114 rockable on pin 115 and

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having a tooth 116 which is projectible, through an opening in said panel, into engagement with one of the slots 113 in disc 111, but is normally spring biased away from said disc.

Four substantially radial pairs of contact blades 117 are spaced around spindle 108, and are associated with insulated plungers 118 mounted one above each pair of contact blades 117, said plungers 118 being displaceable endwise by projection 112 on disc 111 to close contact studs 119, 120. A solenoid 121 is pivotally linked to a bell-crank lever 124 pivoted to base panel 80A on pin 125, one of the limbs of said lever being formed as a pawl or claw for engaging a toothed ratchet disc 126 formed integral with recessed wheel 98. A rod 127 connects lever 124 with lever 114 through a buffer spring 128 interposed between the outer end of lever 114 and a collar 128 on said rod 127.

Solenoids 122 and 123 are pivotally linked with pawl 93 and lever 104 respectively.

The mechanism is set in motion for play by switching on the motor which rotates drive shaft 1, and the operation cycle can be assumed to begin from the moment when the turntable 17 starts from rest; this is effected by pawl 7 on arm 6 engaging with slot 9A in disc 9. As arm 6 revolves, pawl 7 carries with it disc 9 and gear 10, until the tail 7B of pawl 7 engages with fixed pin 11, which causes the pawl toe 7A to be lifted out of slot 9A, so that arm 6 continues to revolve, but disc 9 comes to rest. This represents the first half of the operation cycle. It is during this period that the turntable 17 is made to revolve in the following manner.

As the shaft 1 through arm 6 and pawl 17 rotates gear 10, said gear, through pinion 12 on shaft 13, rotates sleeve 16 through bevel gear wheels 14 and 15, thereby rotating turntable 17. Just prior to pawl 7 disengaging from slot 9A and turntable 17 coming to rest at the termination of the first half cycle, the face cam 21 causes the rod 23 through its roller 24 to move (to the right in Fig. 2), thereby swinging the lever 26, and with it the plate 27, in an anti-clockwise direction.

It will be understood that as turntable 17 comes to rest, stop plate 30 moves into the path of latch 31, and turntable 17 is arrested in a definite position, spring 33 serving as a buffer, and latch 31 ultimately coming to rest hard against pin 34. At this stage the pin 36 on sleeve flange 16A has just latched past bell-crank lever 37.

After this position has been reached, face cam 21 allows connecting rod 23 to move further towards the right, but as stop lever 30 is already located against latch 31 further movement of lever 30 is not possible. Pin 38, however, which is rigidly fixed to triangular plate 27 and has its lower end 38A engaging radial slot 30A in stop lever 30, is allowed

to continue turning in an anti-clockwise direction, which has the effect of turning turntable 17 slightly in clockwise direction movement, until the clearance between latch 31 and abutment 35 is taken up, due to toe 37A of lever 37 bearing hard against pin 36; the other end of lever 37 bears hard against spindle 29.

After this small clockwise movement of turntable 17, cam 21 imparts a slight movement to rod 23 in a lefthand direction, to restore the turntable 17 to the original stop position. This slight oscillation is repeated again immediately, by reason of the adjoining dwells 21A and 21B on face cam 21. The purpose of these slight oscillations is to ensure that the ball never lodges on the points between the turntable notches 17A; if it does come to rest in the position A (Figs. 1 and 5) the slight movement is sufficient to dislodge it.

After the toe 7A of pawl 7 has been lifted out of slot 9A by fixed pin 11, it will continue around the plain periphery of disc 9, without imparting movement to turntable 17, which is now locked in position; the second half of the operating cycle is now in progress.

Just before the toe 7A of pawl 7 is allowed to drop into slot 9B on disc 9, face cam 21 moves rod 23 to the left, lifting stop lever 30 out of the path of latch 31, by the projecting end 38A of pin 38 engaging the end of slot 30A in lever 30. This will allow the turntable 17 to start revolving when the toe 7A of pawl 7 is re-engaged in the next slot. It will be noted that the mechanism described gives equal moving and stationary periods to turntable 17.

As already intimated, there are two balls in operation, and the two balls B and C have the positions shown in Fig. 1 when the turntable 17 has just commenced to revolve; that is, the toe 7A of pawl 7 has just engaged with slot 9A, in disc 9. The ball C, having just been delivered on to the centre of turntable 17 (as explained later) runs down over the slightly inclined top surface of the revolving turntable 17 into bowl 40 and, because of the sloping bottom 40A of bowl 40, eventually finds its way into one of the 37 notches 17A of turntable 17, which at this period will be stationary.

After entering one of said notches 17A the ball is allowed to drop through aperture 41 and in dropping it "makes" one or more switches in the control switch units (except at the ZERO position 200 to operate the Backing Units. Finally the ball reaches the position B, that is, resting against cup 42, which is sprung by spring 46 against the bottom end of spindle 18. When the vertical spindle 47 fitted with cap 48 is withdrawn downwards said cap 48, which is slightly larger in diameter than spindle 47, engages with cup 42 and draws it downwards until its top edge is below the surface of the floor.

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of base 44. This allows the ball to run into cup 42, resting on the cap 48.

The spindle 47 now begins to rise, and cup 42 again stops against the bottom edge of spindle 18. The ball continues to be lifted by cap 48 through the hollow spindle 18 to position C, thus completing the cycle. Spindle 47 is raised and lowered by the rack 47A, sector 54, lever 58 with roller 59 and box cam 22. On dropping through aperture 41 of bowl 40 the ball passes into one of the four chutes of one of the nine switch units 61 and operates switch 68 and possibly switches 69 and 72 also, thereby conditioning the electrical control circuitry (Fig. 15) for "pay-out" according to a correct setting of one of the Backing Units.

A Backing Unit is operated by inserting a coin Z into the pocket 81 in disc 82, which is aligned with gap 85A in ring 85 (Fig. 10). If there is no coin in pocket 81 the knob 84 can only be turned in a clockwise direction, that is, until stop pawl 86 moves into said pocket. When a coin has been inserted in the pocket 81 continued rotation of the knob 84 in a clockwise direction causes the coin to hold back stop pawl 86 and also causes one of the four pushers 88 in disc 82 to move outwards by contacting cam 89, thus pushing the coin Z in pocket 81 beyond the outside diameter of disc 82 sufficiently to push back roller 90 attached to lever 91.

The movable parts of the Backing Unit, before a coin has been inserted into pocket 81 and the knob 84 freed for turning, are normally in the positions shown in Fig. 12. As knob 84 is turned, the coin Z in pocket 81 cams out lever 91, so that latch 93 can fall behind lever 91 and hold it in this position until reset; when lever 91 is in the latched position it closes switch 95, which makes the Backing Unit operative.

At this stage, the locator lever 96 on pin 92 is sprung towards spindle 83, by spring 97, to engage lever 96 with recessed wheel 98; as already intimated the recessed wheel 98 serves to lock disc 82 in its rest position, and to prevent knob 84 being turned in the wrong direction at the start of its movement.

Pawl 87, sprung towards disc 82, falls into a pocket 81 just before the coin Z in the preceding pocket has operated roller 90, thus preventing the knob 84 being turned backwards after the coin has reached the operating position.

Coins which are carried round by disc 82 drop in turn into hopper 99 and may eventually spill out through gap 100 into a till.

The limb 106 on lever 104 ensures that this lever can only operate pay-out purposes when recessed wheel 98 is in its rest position. The player sets the Backing Unit to a chosen combination by turning knob 107 of the selector unit Y, the pointer 109 indicating the chosen combination. The turning of knob

107 closes the appropriate contacts 117 by depression of plungers 118 through projection 112 on disc 111.

Selection of a winning combination is effected automatically by a cycle of the Roulette Wheel and this is performed as follows:—

Assume for this purpose that the beginning of the cycle is when the required money can be inserted into the Backing Units. By this time the ball, which has just been in play, has completed its travel down through one of the switch units 61 and has come to rest in position B; ball C has not yet been lifted into the position shown in Fig. 7. The turn-table 17 at this period would be stationary, and the operating solenoids 121, 122 and 123 all de-energized.

Before the ball is lifted to position C and runs into play, the appropriate coin Z must be inserted, the knob 84 turned through 90° and the selector knob 107 set to the chosen combination.

The first solenoid to be energized after this period is solenoid 121, which is controlled by cam switch 4. When solenoid 121 is energized, it locks knob 84 by engaging the toe of bell crank 124 with toothed disc 126.

The energized solenoid 121 acts upon lever 124 to cause it to move connecting rod 127 thereby urging lever 114 towards disc 111, so that if the knob 107 is turned after this period with the intent to cheat the machine, projection 116 falls into engagement with one of the three slots 113 in disc 111 and locks knob 107 in an inoperative position.

Solenoid 123 then operates, if a winning combination has been selected. The solenoid 123 is operated by the various switches in the switch units 61 in conjunction with the setting of the selector unit Y. This will be apparent from a study of the wiring diagram (Fig. 15) from which it will be seen that the solenoid on the

No. 1 unit operates once

No. 2 operates once

No. 3 unit operates three times

No. 4 unit operates three times.

One reason for this mode of operation is that in the case of a mechanism adapted for operation by say sixpences, it may be difficult to deliver at one time six sixpences, as payout money, from the bottom of change-giving hopper 99, because of the difference in thickness of the sixpences. It is therefore more efficient to operate solenoid 123 either twice to give three sixpences at each operation or three times to give two sixpences at each operation.

In Fig. 15 some reference numbers allotted to component parts, viz., switches 68, 69, 72 and 95 are shown within circles to distinguish from numbers assigned to switches associated with turntable notches. The refer-

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- ence Y117 in Fig. 15 signifies the contacts 117 of selector switch Y (Fig. 10).
- After a payout has been made by solenoid 123 causing movement of lever 104 to eject a certain number of coins from hopper 99 of the winning player's Backing Unit, solenoid 122 is energised by cam switch 5 to lift latch lever 93, thereby releasing lever 91 and breaking switch 95.
- Immediately after, all solenoids 121 and 122 are de-energized, which sets the four Backing Units ready for the next cycle.
- Any ball entering the zero hole 200 passes straight through for re-circulation without making any switches. It will be appreciated that the payout odds are equal to the odds of winning; for example, Red numbers given an even or 50—50 chance and the payout is 1:1 plus the coin inserted so that if there were no zero hole the machine would in theory pay out all money inserted; accordingly the zero position represents the profit or coins passing to the cash till.
- It will be appreciated that the action of lifting the ball to position C for re-play does not and indeed cannot occur immediately on energisation of the operating solenoids above mentioned; there is a short period of time necessary for the mechanism to be set into motion. Ideally a Backing Unit should be coin-free and set while the turntable 17 is stationary, but a short additional backing period is available, as above mentioned, between the setting of the Backing Unit and the ascent of the ball to position C.
- WHAT WE CLAIM IS:—**
1. An installation for playing the game of Roulette, comprising a Roulette wheel or turntable automatically and intermittently rotatable and a Roulette Wheel control mechanism including means whereby betting combinations can be chosen and entered for play upon insertion of one or more coins or counters into a release device forming part of the control mechanism, and during a dwell period of turntable rotation or until a pre-arranged time before rotation of the turntable is arrested and a ball rolls off said turntable, the arrangement being such that said chosen betting combination is automatically entered into conditionable means and thereby conditions subsequent operation of the conditionable means in the event of said ball arriving at said conditionable means.
 2. An installation for playing the game of Roulette, comprising a turntable with drive mechanism for starting and stopping the rotation of the turntable during a period of an operating cycle, and control mechanism adapted for circulating a ball at random through conditionable means associated with said turntable, and a plurality of coin- or counter-operable backing units, which are severally settable by a player during a dwell period of said turntable, or before rotation of said turntable is arrested and according to one of a series of prearranged numerical or numerical and colour combination, said control mechanism including means interconnecting said plurality of backing units with said conditionable means, whereby coincidence of one of said setting unit combinations with those conditionable means actuated by the random-circulated ball initiates payout of prize money to the player who had chosen that particular combination.
 3. An installation as claimed in claim 2, wherein each backing unit comprises manually-settable selector means and manually-settable pay-out means, the former means being set to a prescribed position according to a chosen backing combination and then locked against movement from that set position by the latter means which is operable following insertion therein of at least one coin, coins accumulated in said pay out means forming a store from which the prize money is paid out.
 4. An installation as claimed in claim 2 or claim 3, wherein means are provided to deliver a ball to the centre of the turntable through the open top end of a hollow spindle thereof and, after the rolling of said ball over the face of the turntable to drop from the rim thereof through one of a series of said conditionable means, to return said ball to the lower end of said spindle and lift the returned ball through said spindle to the open top end thereof.
 5. An installation as claimed in claim 3 or claim 4, in which said conditionable means comprises a series of electrical switches pre-arranged for operation by the passage therethrough of a ball, said electrical switches being connected in a variety of circuit combinations with terminal means in each of the selector means, said terminal means being selectively closable by manual setting of said selector means.
 6. An installation as claimed in preceding claim 5, characterised in that following insertion of a coin in a movable member of said manually-settable payout means, said coin is caused by said member as it moves to rock a latch which operates switch means to electrically connect the electrical switch conditionable means with the selector terminal means.
 7. An installation as claimed in any one of the preceding claims, wherein motion from a continuously running shaft is picked up periodically through pawl-and-ratchet means to drive the turntable, cam means on said shaft operating synchronously to latch said turntable after a period of rotation.
 8. An installation as claimed in claim 7, in which said cam means is adapted to impart a slight oscillatory movement to the turntable after it has been latched to ensure that a ball which has run over the face of said turn-

table does not lodge against the rim thereof but is caused to drop through one of a series of rim notches.

- 5 9. An installation for playing the game of Roulette constructed and adapted for operation substantially as herein described with reference to the accompanying drawing and to

the drawings accompanying the Provisional Specification.

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Agents for the Applicants.

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PROVISIONAL SPECIFICATION
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Sheet 1

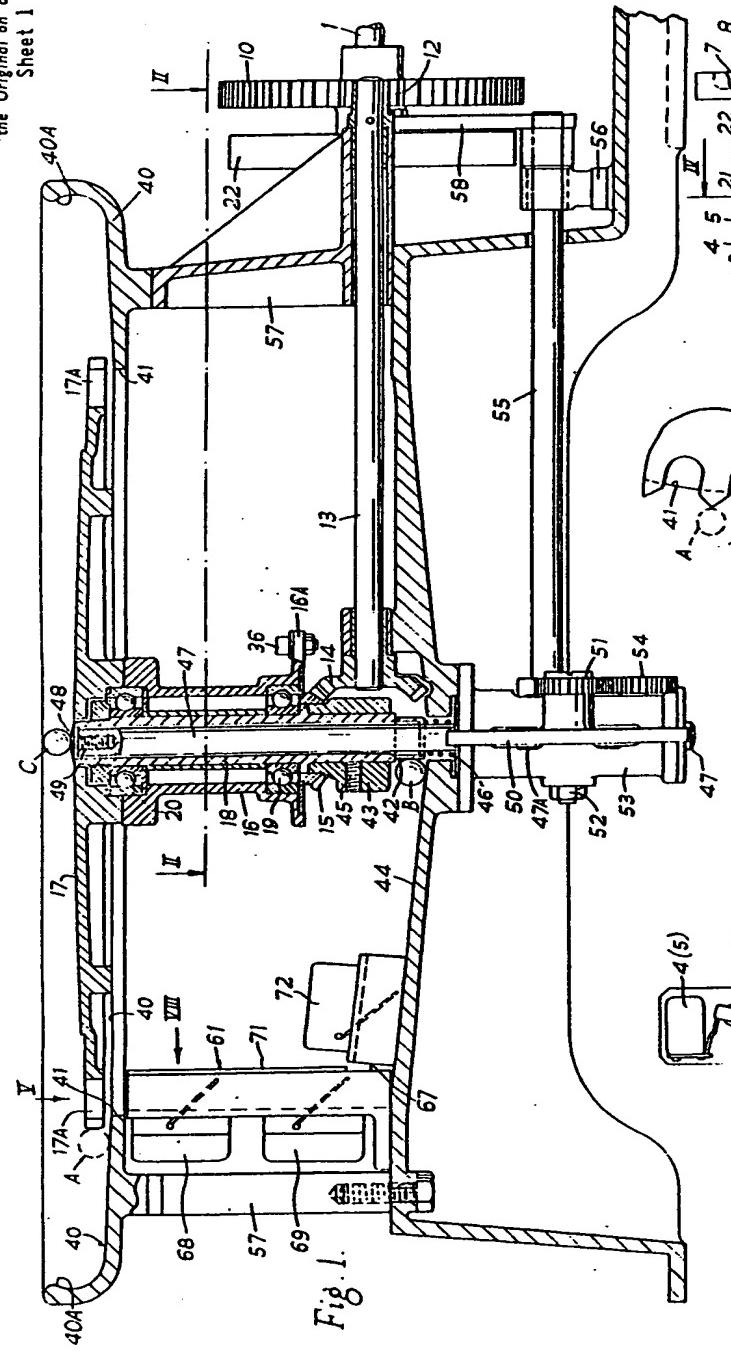
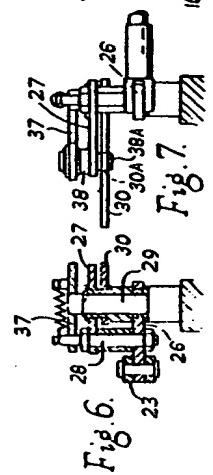
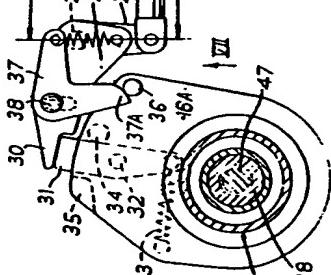
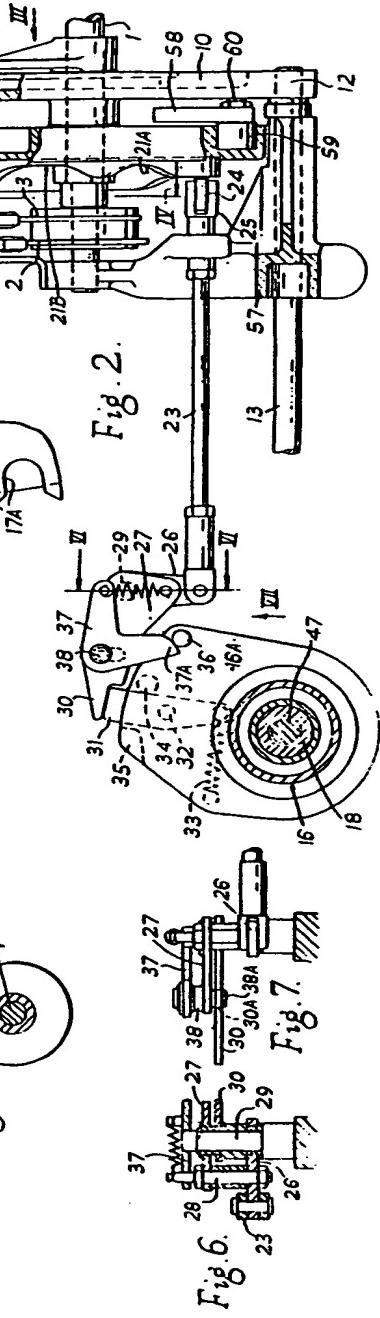
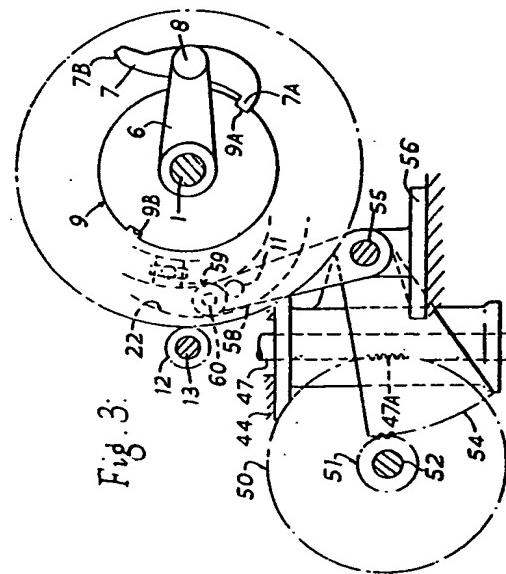
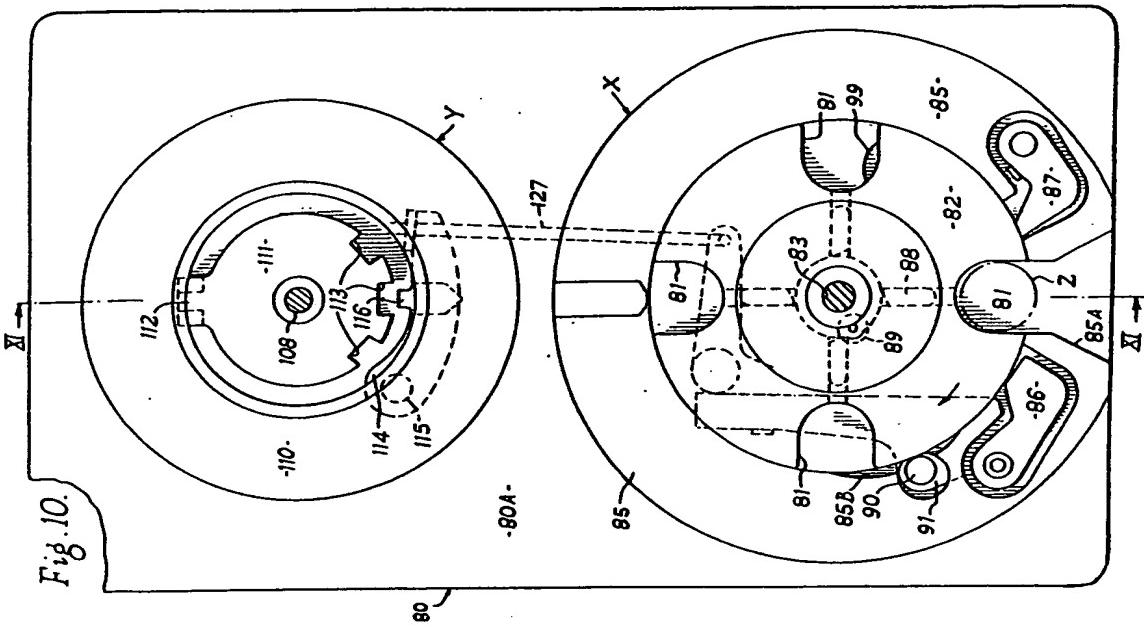


Fig. 1.



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Fig. 11.

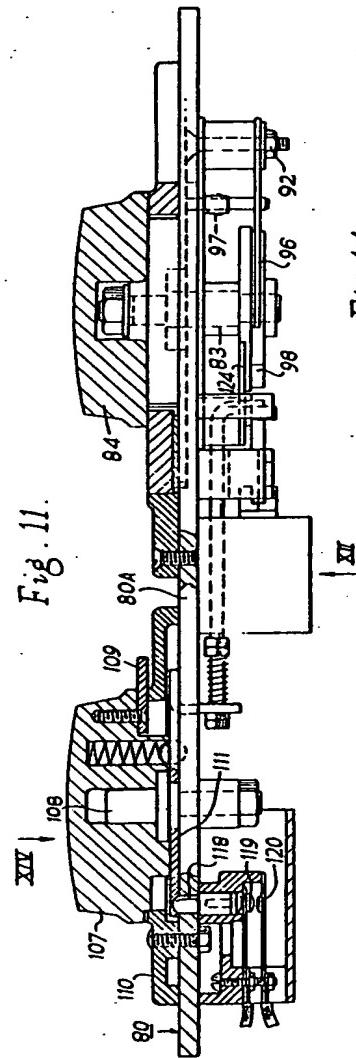


Fig. 13.

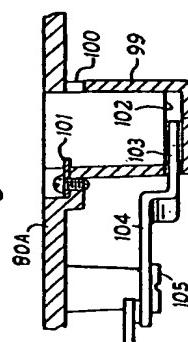
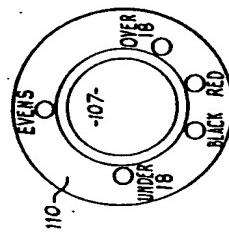
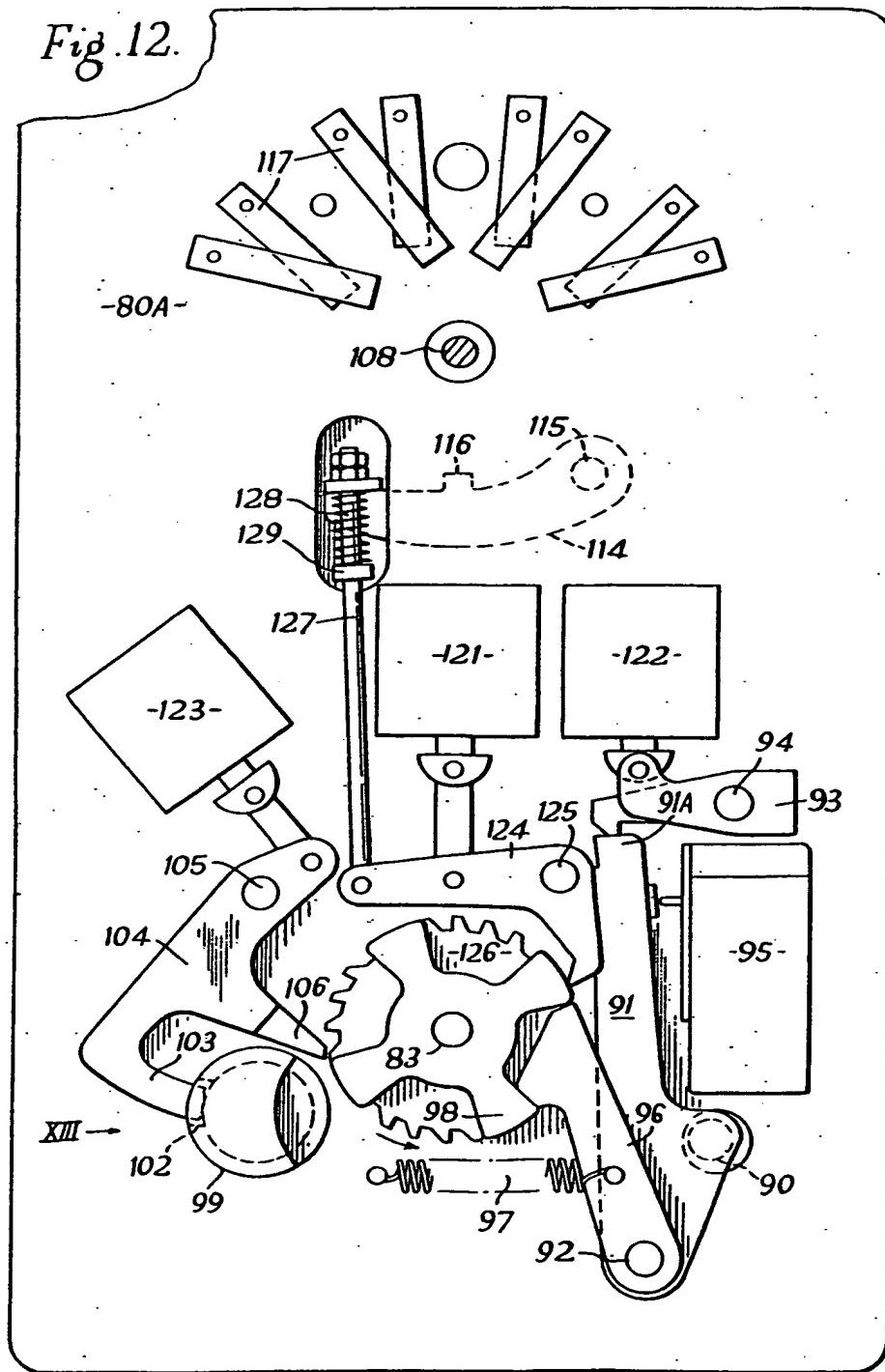


Fig. 14.



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Fig. 12.



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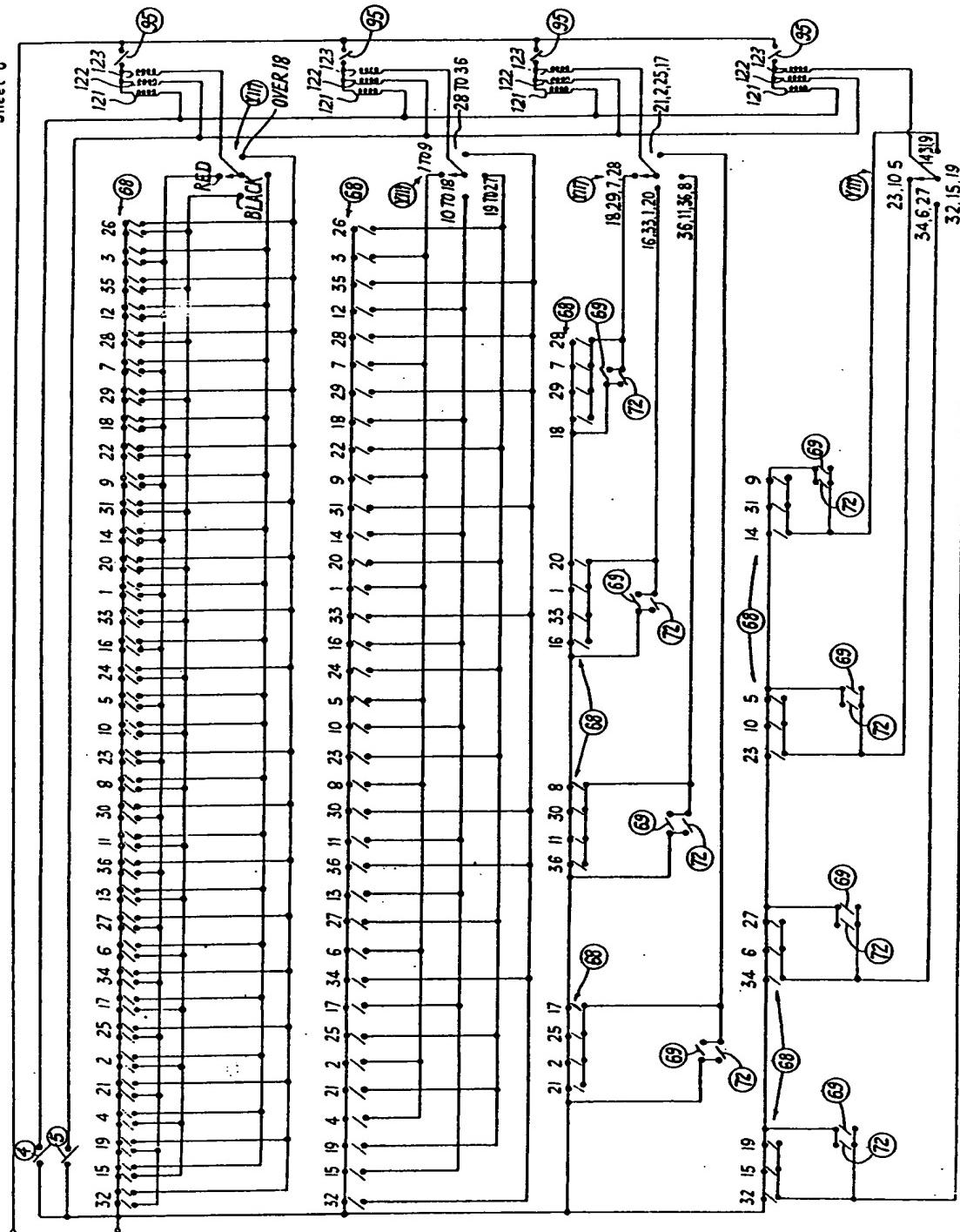


Fig 15.

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COMPLETE SPECIFICATION

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Fig. 16.

